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☞See Advertisement on last page.

Poetry.

For the Scientific American.

OUR DISTANT FRIENDS.

BY MARSHALL S. PIKE.

When morning flings her rosy beams,
High up the orient-bordered skies;
On pleasure's wings, from happy dreams,
Life wakes to hope and realize,
But friendship's link seems broke in twain,
As distance with its varying art,
Makes fancy think fond hope is vain,
And pictures sorrow to the heart.

Then noontide's ray of golden hue,
Comes streaming through the firmament,
And brilliant day illumes the blue,
Which seems o'er earth convexly bent.
The pleasant past was so like this,
Joy thought the future to control;
But changes fast, brought us from bliss,
And centred sadness in the soul.

Now slumbers hush again the world,
And darkness gathers for the night;
As beauty's blush 'mid tresses curl'd,
Is hid away from glaring sight.
While midnight dwells in dewy air,
And stillness reigns so calmly sweet;
Dear memory tells its earnest prayer,
That distant friends may soonest meet.

THE ANGEL OF PATIENCE.

BY. J. G. WHITTIER.

To weary hearts, to mourning homes,
God's meekest angel gently comes;
No power hath he to banish pain,
Or give us back our lost again,
And yet, in tenderest love, our dear
And Heavenly Father sends him here.

There's quiet in that angel glance,
There's rest in his still countenance;
He mocks no grief with idle cheer,
Nor wounds with words the mourners ear,
But ills and woes he may not cure,
He kindly teaches to endure.

Angel of patience sent to calm
Our feverish'd brows with cooling palm;
To lay with hope the storms of fear,
And reconcile life's smile and tear:
The throbs of wounded pride to still
And make our own our Father's will.

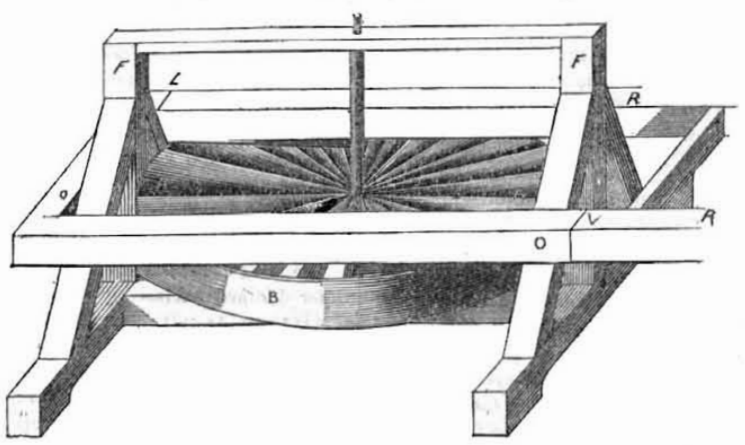
Oh! thou who mourned on thy way,
With longings for the close of day,
He walks with thee that angel kind,
And gently whispers, "Be resigned!"
Bear up, bear on, the end shall tell
The dear Lord ordereth all things well!"

A well ordered house has been truly compared to a watch, all the wheels and springs of which are out of sight, and it is only known that they exist, and are in order, by the regularity with which their results are brought about.

"I can't *bear* children," said Miss Prim, disdainfully. Mrs. Partington looked at her over her spectacles mildly before she replied "Perhaps if you *could* you would like them better," she at last said.

Deciduous trees are those whose leaves fall off every year, as opposed to evergreens.

GUYON'S WATER WHEEL.



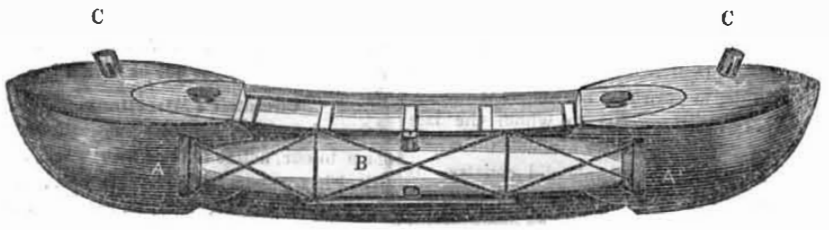
There are many modifications of the tub wheel, yet who can say with regard to their construction, that we have arrived at perfection. Is it not rather a fact that in regard to the construction, operation and mechanical effect of reaction water wheels, that there is but little true knowledge among practical men and far less among the merely scientific, for the latter class are dependent on the former for the collection of experiments. It will afford no matter of wonder then, if much has yet to be discovered amid a host of conflicting opinions, and that Mr. Guyon's Wheel will be a valuable acquisition to practical hydraulics. Its economical construction demands attention, and its operations by the following description will be more easily appreciated by being better understood.

EXPLANATION.—This is a perspective view of the wheel geared on a frame to a vertical shaft. F F, are posts of the frame. O O, is the water trunk. A A, are the solid buckets which branch out from the centre to the periphery B, and the water is discharged through open buckets or orifices just inside of B. The manner in which the water is applied to this wheel is peculiar. It is admitted on the one side by a valve in the bottom of the trunk at V, and passes down a spout which will be seen in the engraving, falls on the wheel near the periphery opposite the shaft, and striking the sides of the discharge buckets quickly passes out ridding the wheel as quickly of useless weight after having performed its work. The wheel is convex, so that the solid or inside buckets A A, are incline planes for the purpose of quick discharge. The discharge buckets are also incline planes, for they are bevelled out towards the spout that admits the water and the inlet of the discharge of one bucket is exactly above the outlet of discharge of the other, taking advantage in this manner of the law which governs non elastic fluids in their discharge through orifices as the point at which water expands and exerts expansive force is upon the long end of the lever, the circumference of the wheel. By having a valve on the bottom of the trunk at V, one half of the water is allowed to pass round the trunk and is applied on the other side opposite by another spout, or it can be applied from the dam or fountain direct on both sides by R R, only by having a back water gate L on the other side, to send back the water down the spout. The two streams of water fall upon the wheel in different directions, yet both upon the same sides of the buckets equalizing the friction.

The advantages of this wheel are, the simplicity of construction, its easy application to small streams without the expense of making a dam, economical considerations well worthy of attention, and no doubt it will receive it from all those interested in such things.

The inventor is Mr. Henry G. Guyon of this city, who has already patented more than one useful invention, and who has made application for a patent for this wheel.

THOMPSON'S LIFE BOAT.



The above engraving is a represent ation of Mr. Nathan Thompson's Life Boat. It was exhibited at the Fair, and attracted no little attention. The principle upon which this boat is constructed is by applying hollow false bows and sides to a boat, which shall act as buoys and in all cases render the boat to which they are attached, incapable of sinking. These buoys are portable and are made so as to be fitted to any boat, converting thereby a common boat in a few minutes into a life boat. A A, are portable bows, being hollow chambers made either of wood or galvanized iron. B, is a side buoy, and by the lashings it will be observed, that all the buoys are connected together Some may object to the lashing not being strong enough in cases where such a boat is required; but all know with what facility and strength sailors can use the rope to make all taut. The tubes C C, are openings into the chambers (each bow is divided by a partition through the centre,) for the purpose of righting the boat if it should turn over. There are valves also on the bottom of these tubes opening outward which can soon clear the chamber of water, when the boat is righted. The two small caps observed near the open part of the boat, are openings into two portable lockers, for holding instruments such as compass, charts, &c., and also provisions. These are important considerations. A boat of this kind can be always ready for any emergency, and yet it can very soon be transformed into a common boat for common purposes, while a common boat can as easily be made a life boat As a surf boat it is invaluable.

The inventor belongs to this city, and has made application for a patent.

RAIL ROAD NEWS.

Railroad Receipts.

The receipts for passengers and freight on the Long Island Railroad, during the month of September, amounted to $15,413 77, being an increase of $3,033 40 over the corresponding period of last year.

The receipts of the Erie Railroad for the month of September, were $23,782 70, being an increase of $5,130 71 over last year.

The receipts of the Fall River Railroad for the last four months before September, were $42,599.

Hudson River Railroad.

This road is steadily progressing towards completion. Fifty five miles of it from this city are under contract. We hope to see this road constructed, and well constructed, in the most rapid manner possible. It will test the economy of railway and water transportation.

Railroad Sale.

The Tuscumbia, Courtland, and Decatur Railroad, Alabama with all its appurtenances, fixtures, &c., was sold a few days since, under a decree from the U, S. district court to satisfy the claim of Prime, Ward, & Co., of New York, who are the holders of the bonds of the company to a large amount. The road was bid off by an agent of the New York company, we are informed at forty-one thousand six hundred dollars. What disposition is to be made of the road we are not informed.

Crampton's Narrow Guage Engine.

Crampton's great locomotive engine, the Namur, having high driving wheels and low boiler, run lately on the London and North Western Railway, making the extraordinary speed of 75 miles an hour, and all done, says the Railway Chronicle, "smoothly and safely."

Atmospheric Railway.

On the South Devon Railway, England, a speed of 67 miles per hour was lately obtained with a 30 ton train and 60 miles with a 50 ton train, 36 miles with a 100 ton train.

It is recommended in the London Patent Journal to use rope, or wire, attached to a bell on the locomotive engine, the rope to run through the train and be at the command of the conductor to warn the engineer to stop or go on, in case of accidents. This plan has been long in use on our railroads.

Telegraphs.

Some mean rascals have stolen about 600 feet of the telegraph wire on the Western line near Rochester.

New Line.

Hon. Amos Kendall and Mr. Smith, have lately visited Louisvile, Kentucky, and made arrangements for building a line of Morse's telegraph from New Orleans through Nashville, Lexington and Maysville, to Wheeling and Baltimore, with spurs to Louisville, Cincinnati and Pittsburg, the whole to be under one company, and to be finished at the earliest possible period.

Buffalo and Milwaukie Line.

The line of telegraph between Buffalo and Milwaukie, a long route, is rapidly approaching towards completion.

Troy and Montreal Line.

It is calculated that the line from Montreal to Troy, N. Y. will be completed in about three months. At present messages from Buffalo have to come round by Buffalo.

Man.

The ancient philosopher defined man to be a cooking animal. A more modern one says he is a book-making animal: but we think the Cleveland Herald has hit it, which says: "Man is a reasoning animal who paints with the sun-beams, travels by steam, talks by lightning, speculates in breadstuffs and swaps handsaws and jackknives."

Hair has been transplanted from one part of the body to another.

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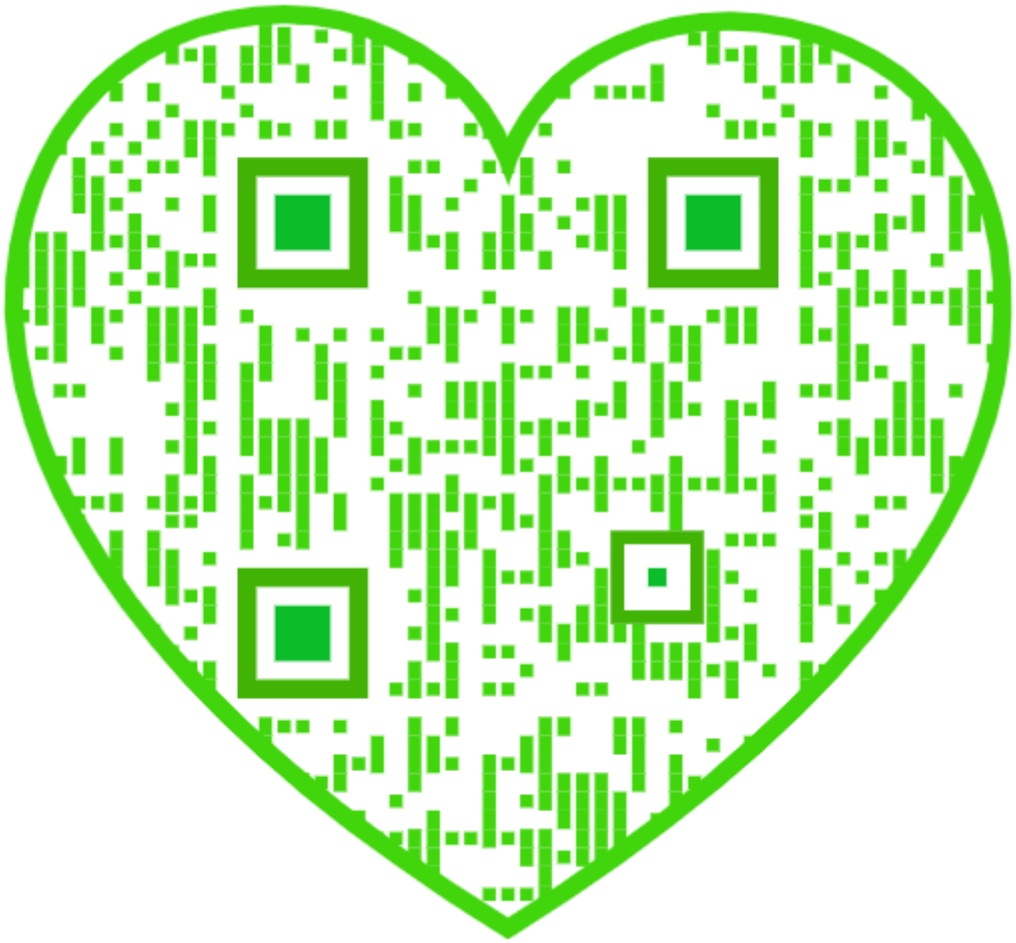

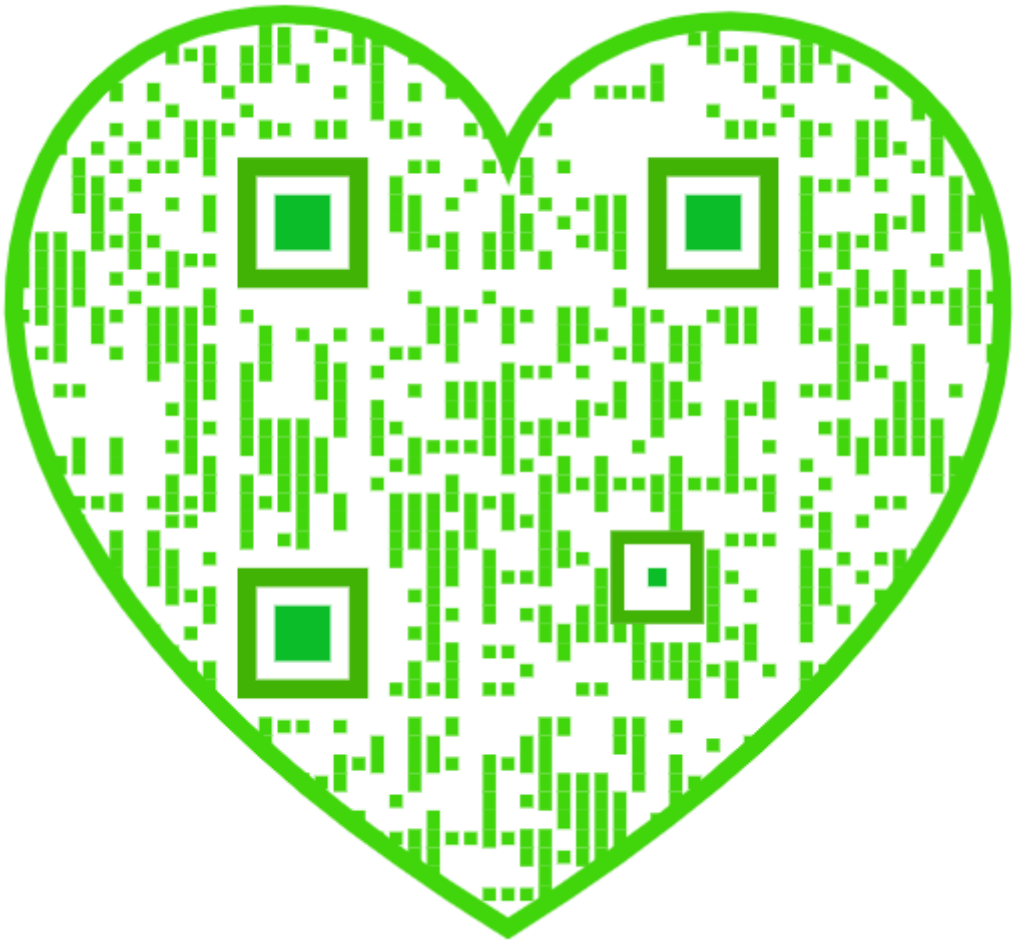

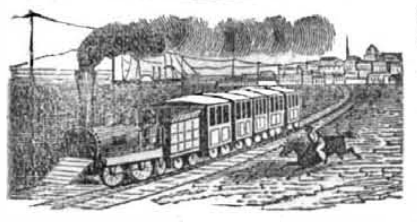

Fair of the American Institute.

The twentieth annual Fair of the American Institute closed on Saturday evening last, and it is to the honor of the Managers that the closing scene was one of charity. The proceeds of the day were devoted to the benefit of a little girl who lost the use of her hand, being cut by one of the machines exhibiting. We believe that a sum amounting to over seven hundred dollars was the result of last Saturday's exhibition, and some generous gentlemen have made it up to one thousand dollars.

The prizes have have been awarded, and no less than 27 gold medals, 44 silver cups, 244 silver medals, 125 volumes of books, 11 special premiums and 402 diplomas.

We will refer to some of these again, and would merely infer that many are undoubtedly disappointed. These things may be expected. There was one machine exhibited at the Fair too valuable to be neglected. This was Groom's machine for cutting bolts and nuts, manufactured by J. F. Rogers, of Troy

The gold medals have been awarded as follows :—

Inventions, Models, Machinery, &c.

James R. Stafford, of Cleveland, Ohio, for a machine for drying corn meal, Flour, &c. Horatio Allen, Novelty Works, N. Y., for a steam register and vacuum guage. F. M. Ray, New York, for improved railroad trucks.—Daniel Griffin & Co., 192 Broadway, N. Y., for a plan for heating air for factories, &c.—A. W. & J. B. Von Schmidt, 43 Duane st., N. Y., for the best ship pump. D. D. Badger, 44 Duane st., N. Y., tor revolving iron shutters· T. D. Jackson, 181 Broadway, N. Y., for an Enunciator. Alexander Dickerson, Newark, N. J, for a new process for making bar iron. Lackawana Iron Company' Luzerne Co., Pa., for the best railroad bars. Perry B. Gardiner New York, for the best cotton press. Joseph Francis, New York, for a galvanized iron life boat. D. D. Badger, 44 Duane st., N. Y., for the best steering apparatus. Horace P. Russ, 281 Broadway, N. Y., for his material for and mode of paving streets.

Choice Americrn Fabrics.

Northampton Woolen Company, Mass., for the best wool-dyed black cloth from American wool. Burlington Manufacturing Company, Vermont, for the best plain cassimeres.—Welcome Farnum, Waterford, Mass., for the best fancy cassimeres. B. S. Wolcott, Oneida Co., N. Y., for beautiful satin jeans. Stone, Swan & Co. 48 Exchange place, N. Y., for cashmere and mousline de laines, (Manchester we think.) Palmer & Co. Newark, N J., for the best tapestry and Axminster Carpeting.—Daniel Rodgers, Hoosick, Rensselaer Co. N. Y., for the best fleece of wool. Ibbotson, Hornor & Co. 33 Liberty st., N. Y., for the best American cutlery. Utica Screw Co. N. Y., for the best wood screws. B. F. Palmer, Meredith, N. H., for his patent artificial leg.—John Mitchell & Co., 132 Mercer st. N. Y., for the best silvered solar lamps. John Warren & Co 341 Broadway, for the best lackered Girandoles. James Pirsson, 88 Walker st. for the best piano forte. John Stephenson, 27th st. N. Y. for a superb omnibus.

New Material for Paper.

Dr. Stremme, Professor of Architecture in the Imperial University of Dorpat, Russia, has recently invented a method of drawing from the leaves of the pine a cotton-like substance, to which he has given the name of forest wool, which is extremely well fitted for the fabrication of coarse stuffs, as well as pasteboard and wrapping paper. The cloth made of the forest wool retains, it is true an odor of rosin, but as this odor drives off troublesome insects, the cloth may be used with advantage in bedding, such as matras covers, blankets, &c., especially for barracks, hospitals, and other establishments, where a great many persons are crowded together.

Mining in Australia.

There has lately been discovered upon a section on the banks of the Torren's river, a new vein which promises to be of great benefit to the colony. The miners engaged in exploring a vein of copper, accidentally struck upon a lode of galena. This ore has been been found by assay, to contain the enormous proportion of more than 600 ounces of silver to the ton. The galena is accompanied with other varieties of lead and silver ore. The following are the particulars of the analysis :—The metalliferous portion of the specimen, separated nearly, but not completely from its matrix, weighed 75 grains, and yielded 45 grains of lead, containing 1·33 of pure silver, or abou 1 3-5 per cent on the ore. This is at the rate of 627 ounces avoirdupois to the ton of 20 cwts.

The Laziest Man.

A worthy old citizen of Newport, who had the reputation of being the laziest man alive, among them hillocks, so lazy indeed, that he used to weed the garden in a rocking chair, by rocking forward to take hold of the weed, and backwards to uproot it—had a way of fishing peculiarly his own. He used to drive his old whitefaced mare down to the spot where the tautog (blackfish) might be depended on, for any weight from two to twelve pounds—back his gig down to the water, put out his line, and when the tautog was safely hooked, start the old mare and pull him out.

We commend the above inventions to the attention of the New York Farmer and Mechanic.

Minerals in Canada.

In Canada, the mineral wealth is considerable, although only the iron mines of St. Maurice and Batiscan, in Lower Canada and Marmora in the upper province have been rendered productive. Iron, coal and lead mines abound in St. Paul's Bay, on the north shore of the St. Lawrence, 60 miles below Quebec. A gold mine is said to exist in Mr. De Lery's seigneury, on the west bank of the Chaudiere. A lead mine has recently been discovered in the parish of St. Ursula, district of Three Rivers, nine miles north of the St. Lawrence.

Cotton in Turkey.

Dr. Davis, of South Carolina, having established a model farm near Constantinople, under the patronage of the Sultan, has succeeded in raising cotton which bids fair to equal the American staple, both in quality and productiveness.

Cotton in India.

The London Times, says :—" Government have received and are considering a most comprehensive plan for the further growth and greater encouragement of the cultivation of cotton in India, so as to make this country, whenever expedient, entirely independent of the United States for the basis of the greatest of our staple manufactures."

The Mines of Nova Scotia.

The people of Nova Scotia are determined, if possible, to get rid of the claims of the General Mining Company, to whom the late Duke of York assigned for his debts the whole of the minerals of that splendid country. It may be well to add that the Duke obtained the grant from the Crown to pay the debts lavished on his flaunting mistresses. That was the way Britain used her colonies once. She is wiser than to do so now.

Street Advertising in France.

A *prefet du police* has lately been issued, forbidding the circulation of any carriage or vehicle whatever, bearing placards, bills, or other intimation of publicity. Placards carried in the streets are a nuisence, but we do not see how, in a free country, the practice can be put down. In France, however they do occasionally strange things.

He'll Do.

A chemist in this city has jnst patented a pill, of sufficient power to work a snuff mill. Sneezes for six.

The following toast was given at the Concord Cattle show dinner:

Uncle Sam's Farm.

The only farm where draining is carried on all the year round.

American Champagne.

Mr. Longworth, of Cincinnati, states that he has made from his last season's vintage of Catawba grapes 6,000 bottles of champagne, which promises to be of superior quality, and will be fit for use the next year.

A gentleman of this city, who spent the last summer in Cincinnati, and who is, or has the title to be, as good a judge of champagne wine as any gentleman in the land, informs us that, besides Mr. Longworth's, there are several other extensive vineyards in the vicinity of Cincinnati; that the proprietors of several of them have obtained wine-makers from the champagne district in France, and that they now produce champagne on the banks of the Ohio fully equal to any of the French article; that he drank at different tables this domestic champagne of last year's vintage which the most practiced wine-drinker could not have distinguished from the best foreign.

Order of Agriculture.

The King of Prussia has lately created an Order destined exclusively to agriculture—that is to say, to cultivators and persons who distinguish themselves in this department of industry. The decoration bears on one side the effigy of the King of Prussia, on the other the motto, "For agricultural merit," surrounded with a crown of wheat, with vine and olive leaves. The exergue bears the name of the designer. Three classes are to be established in this order. The King reserves to himself the exclusive right to distribute the Order of the first class: the second and third will be granted to farmers, presented by the College of Economy. The distribution will take place annually, on occasion of agricultural festivals and the solemn sessions of Agricultural Societies in the Prussian Monarchy.

Curious Marriage Contract.

In the Royal Library of Paris is written a contract, drawn up in 1297, between two persons of noble birth in Armagnac. The document bound the husband and the wife to faithful wedlock for *seven years*. It stipulated that the parties should have the right to renew the tie at the end of that time if they mutually agreed; but if not the children were to be equally divided, and if the number should chance to be unequal they were to draw lots for the odd one.

There is, in the same alcove of the library, a contract between Saint Bernard, of the Diocese of Rheims and the Seigneur of Chatillon by which the Saint binds himself to give the said nobleman the same number of acres of land in heaven as the Church receives of him on earth.

One or Tother.

A dozen children may seem a large family with our folks who are moderate," remarked Mrs. Partington; but my poor dear husband used to tell a story of a woman in some part of the world where he stopped one night, who had nineteen children in five years; or five children in 19 years, I don't recollect which, but I remember it was one or 'tother"

Chamber's Miscellany.

One of the most valuable publications that come to our notice is the above work, published in numbers by Berford & Co., 2 Astor House. No. 5 is received, its contents varied and interesting.

The Mechanics are Coming.

G. S. Webb of Buffalo is nominated for Member of Assembly, and Mr. Follett of Batavia for Canal Commissioner, both types by trade. The mechanics are marching onward to Quebec.

A Glorious Death.

The greatest virtue a woman hath is modesty, and the highest heroism is to die in its defence.

The inhabitants, of Cambridge, England, are about to start a coach between that town and London, in opposition to the eastern counties Passengers are to be conveyed the whole or any part of the distance. at the rate of one penny per mile. Economy *vs.* speed.

The highest shot tower in the world is the Merchant's Tower, in Pittsburg, being 250 feet, 1 foot higher than that of Villack Carinthia.

The Iron Manufacture of France.

It appears from the Paris Journals of a late date, that the iron manufacture of France is in a flourishing condition and rapidly extending. In 1825, the product was 190,000 tons of pig iron and 144,000, tons of bar iron. In 1835, 295,000 tons of pig iron and 210,000 tons of bar iron. In 1845, 439,000 tons of pig iron, and 342,000 tons of bar iron—showing an increase of about 50 per cent over the product of 1835. This quantity was produced by 432 furnaces and forges, 207 steam engines 2047 hydraulic engines, and 98,000 laborers. In the year 1845, 425 mines yielded 2,640,000 tons of iron ore, which as a general thing, affords a greater per centage of iron than the ores of England and Belgium. The average price of iron in France in 1825, was 48 francs per 100 killogrammes; (about two hundred weight) in 1835, 42 francs, and in 1845, 34 francs. From this account it would seem that the present annual product of iron in France, does not vary greatly in quantity from that in Pennsylvania.

The Columbus (Ohio) Statesman of Tuesday week says: "During a thunder storm this morning the lightning took a notion to work the telegraph on its own hook, but made sad work of it. Running along the wires it entered the Telegraph office in this city and melted the wrapping of the magnet, so that the communication was cut off for several hours.

The cultivation of tobacco has so much increased in Algeria that nearly 300,000 killogrammes (300 tons) will be purchased during the present year for the French Government, which monopolizes the sale of tobacco in France.

A sad accident has occurred at Nashville, Tenn. The Powder Magazine exploded by an electric spark, a great number of houses have been destroyed and also ten human beings sent prematurely into another world.

The Albion of St. John, N. B. should have credited the Sci. American with the new method of Veneering. It appeared in No., 47, and was copied nearly word for word by the paper to which our valuable exchange credits

Several French engineers have arrived in Egypt for the purpose of making surveys of the Isthmus of Suez, in order to ascertain whether it will be practicable and advisable to cut a ship canal from the Mediteranean to the Red Sea.

The inquest on the sufferers by the explosion of the Cricket steam vessel on the Thames has at length closed, and a verdict of manslaughter returned against Heasman the engineer.

Robert Clark, Esq. of Quebec, lately walked with apparent ease fifty miles in 10 hours and 27 minutes.

The question is agitated of running homœpathic doctors for magistrates, *justice in small doses* being desired among certain classes.

The estimated cost of the main line of the Great Canada Western Railroad from Niagara River to Windsor, the Western terminus, is £1,238,520, and, including a branch to Port Sarnia, £1,464,930.

A patent for an eight day watch, made to go without an inside chain, has been taken out at Preston, England.

A mesmerised druggist on having his organ of *adhesiveness* touched, immediately rose and said he would spread a plaster.

The atoms composing a man are believed to be changed every forty forty days, and even the bones in a few months.

A Vermonter has obtained a patent for a pocket telescope that will bring cows tresspassing in his corn-field so near, that he can shoot them with a pocket pistol.

'Well, Miss,' said a knight of the birchen rod, 'can you decline a *kiss*?—'Yes, sir,' said the girl, dropping a perplexed courtesy, 'I *can* —but I hate to most plaguily.'

Among the exports from Boston, last week, was a case of Baby Jumpers, for the use of the Spanish Senoras in the West Indies.

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New Sheet Metal for Sheathing.

The following specification from our excellent exchange, Newton's London Journal will be read with some interest. A patent has been granted for the invention to Baron C. Wedderstedt.

The first part of this invention consists in manufacturing lead, combined with a small quantity of antimony, into sheets for various purposes. The lead is melted, and regulus of antimony is added thereto, in the poroportion of from one to two parts, by weight, to 100 parts of lead; the mixture, after being stirred and skimmed, is run off, and rolled into sheets. The patentee says, he is aware that lead and antimony have been before combined together; he does not, therefore, claim the same generally—this part of his invention consisting merely in combining antimony with lead in such proportions, as will allow of the compound being rolled into sheets.

The second part of this invention consists in manufacturing copper, combined with a small quantity of antmony, into sheets for various purposes; and in combining certain other metals together, and rolling them into sheets. The patentee adds to every 200 lbs. of copper in the refining furnace, when it is ready to be run out, about 1 lb. of regulus of antimony, and 2 or 3 lbs. of calcined soda, heated to nearly the melting point; the metal is well-stirred and skimmed, and then it is run into moulds, and afterwards rolled. In carrying out the second improvement, the patentee employs two furnaces, placed side by side—one containing refined copper (prepared as described in the preceding improvement, or refined in the usual way), and the other Muntz's patent yellow metal; an iron mould, coated with clay and sand, is made red-hot, and in it is poured one part of copper to four or five parts of yellow metal; but previous to the yellow metal being poured in, a small quantity of melted tallow is sprinkled over it with a brush, for the purpose of cleaning it. The yellow metal is then poured in, and the whole mass is in a fit state for rolling into sheets. If preferred, brass may be substituted for the yellow metal. The same process may be employed for producing a combination of lead and tin; the two materials being used in the proportion of four or five parts of lead to one of tin, or tin and lead combined.

The third part of this invention consists in certain methods of preventing the corrosion of metals, and preserving wood and other materials. A paint for effecting these objects, is prepared, by melting two or three parts of copper with one part of regulus of antimony, and running the mixture into water, after which it is dried by a gentle heat; then two parts of oxide of copper are added, and the whole is ground—the mixture being moistened by the operation of grinding with as much naptha as will bring it to a thick pasty state. The metallic composition thus made is reduced to the required consistence, in order that it may be used as paint, by the addition of a solution, composed of tar and naptha in equal parts. When preparing paints, in which zinc or lead is to be employed, the patentee uses antimony in the proportion of one-and-a-half parts to one part of zinc, or lead; and when tin is employed, the relative proportions should be two parts of antimony to one of tin. These materials are melted together, run into water, and ground, as above described and (the oxide of copper being omitted); and they are brought to the required consistence by the addition of oil and turpentine, and suitable drying ingredients, or of the solution, formed of tar and naptha, before mentioned.

Another composition, or paint, which may be applied to the metal, wood, or any other materials, previous to its being coated with the above paints, or which may be used alone as a preservative, is made by melting together 30 lbs. of tar, 30 lbs of pitch, 20 lbs. of dried soot, and 4 lbs. of tallow or sperm oil—a sufficient quantity of naptha being added, to bring the mixture to a suitable consistence.

Another plan for preventing corrosion is by immersing sheets of copper and zinc, and copper and zinc nails in a solution. composed of muriatic acid of commerce 60 lbs., oxide of copper or old copper, 10 lbs., and regulus of antimony 3 lbs.,—the sheets and nails being allowed to remain for two or three days in the solution, which is to be kept at a temperature of 70° Fahr., The patentee claims, firstly, the mode of manufacturing sheet metal by combining lead and antimony. Secondly, the mode of manufacturing sheet-metal by combining copper and antimony; also, the mode of combining copper and yellow metal, to be afterwards rolled into sheets of sheathing, and for other purposes; also, the mode of manufacturing sheet-metal, by using lead and tin; also, the treating of sheet-metal and nails, as above described. Thirdly, the modes of preparing, or combining, materials, to be employed as paint for the prevention of corrosion of metals, and, also, for the preservation of wood, and other materials.

A Curious Spring.

There is a great natural curiosity in Delaware county, Ohio. The manner of discovery is thus related; Some time about the year 1818, two men by the names of Davis and Richards, salt boilers by profession, commenced boring for salt water in the bed of the Scioto river, near the place mentioned. After having bored about twenty feet through a solid rock, they came upon a stream of white sulphur water, of the strongest kind. The augur with which they were boring suddenly sunk something like two feet, which is probably the depth of the stream—but such was the pressure of water that the augur was forced up again, and large weights had to be attached to it to keep it in place and enable them to bore further, They continued, however, until they got 400 feet below the sulphur stream, when they struck upon salt water. The size of the augur was about 2½ inches in diameter. When they took it out, the jet of the sulphur water rose up to the height of twenty feet above the surface of the river. In order to obtain access to the salt water beneath, they procured a strong copper pipe and attempted to force it down to the place where it was to be found. But whenever it reached the sulphur stream, such was its force and pressure, that the pipe was completely flattened, so as entirely to prevent the passage of water through it. All subsequent attempts to insert a pipe proved abortive, and after prosecuting the work at intervals for several years, the project was abandoned entirely. After enlarging the orifice made by the augur, at the top, a wooden stock, 20 feet in height, was inserted—yet even at the top of this, such was the force of the stream, that it required the strength of two or three men to put a plug in it. From this stock, a pipe conveys the water to a spring house, on one of the bluff banks of the river. The stream has been running for 26 years, yet its strength and force are unabated. Those who have recently examined it, say that it is capable of throwing up a stream ten inches in diameter, from 80 to 90 feet high; and that water can be obtained to turn a large mill.

A French Clergyman's Opinion of Dancing.

The cure of Guadin, in the Meurthe, has been ordered by the magistrates to pay, with other expenses, 25 francs to a musician, who fiddled as the parishioners danced on St. Medard's Day, and whose instrument the reverend gentleman smashed in consequence. The cure, however, was not to be intimidated; he announced from the pulpit, that if there should be another dance he will not attack the paltry fiddler, but, like another Samson, break the windows of the houses, tear down the roof, and send his profane flock dancing to another world!—*Populaire.*

The Mormons.

The Mormon Prophet Strang, has ordered all his followers to Beaver Island, in Lake Michigan. He has bought up that spot, containing 40 square miles, and expects to gather the Morm ons there this fall.

Sir Matthew Hale says—"Be careful not to interrupt another when he is speaking, hear him out and you will understand him better, and will be able to give him the better answer."

The Cathedral at Salisbury has in it as many windows as are days in the year, as many marble pillars as hours, and as many doors as months.

Typhus Fever.

Dr. William McLeod, in a note to the People's Journal, says that typhus fever cannot be arrested by any drug or medicinal means. Bleed and blister, purge and calomize, or stimulate, and the average number of deaths remains the same from this disease. Dr. McL., who is a fellow of the Royal College of Physicians, Edinburgh, does not write in this way to disparage the art of medicine; but to induce the regular practitioners to investigate, and society to become acquainted with a practice which, in typhus fever, will save ninety six out of every one hundred attacked with it, if resorted to in the earlier stages.

The following is the course of treatment recommended:—

Place the patient, as soon as possible, in a sheet well wrung out in cold water. This sheet should be laid on a blanket extended on a mattrass, which should be wrapped close around the patient, as high as the neck. Let the blanket be folded tightly over, so as to exclude the external air, and two other blankets or a small feather bed be added. Repeat the process every time the patient becomes restless or uncomfortable, until the dry, hot skin becomes softer and more prone to perspiration, and the fever entirely subsided, even should it be necessary every ten minutes, or should the fever last twenty-four hours. Immediately after each envelope, the patient should be washed in a slipper bath, or common tub, the temperature of the water being seventy-five degrees Fahrenheit or thereabouts. The head should be shaved, and bandages wrung out of cold water kept applied, changing them each time they become warm, until all headache is removed. A similar bandage should be folded once round the stomach carefully and closely covered by three folds of dry cloth, to prevent evaporation. Let the patient drink as much cold water as he pleases during the whole course of the disease, a free circulation kept up, and the room be kept cool.

The process of Dr. McLeod will usually overcome the fever in twenty-four hours.—For three days thereafter, however, let the wet sheet envelope be applied morn, noon and evening—the patient remaining in each time three quarters of an hour, and the body be washed after each with water of the natural temperature If the bowels be constipated, use every morning an injection of tepid water, as long as required. Gentle exercise and moderate diet should be used; all stimulants and medicines avoided.

We know nothing about medicine, and give this plan of treatment because we find it in a highly respectable journal, and published at a time when typhus fever is raging in every city in England. The Doctor speaks authoritatively. His position is unquestioned, and he affirms that "the average number of deaths from the epidemic will not exceed four out of every hundred of the worst cases, provided this plan of treatment be adopted sufficiently early."

Advantages of Law.

A young man, who studied law in Connecticut, became acquainted with the following facts, which are certainly very remarkable, though not so very singular:

A farmer cut down a tree which stood so near the boundary line of his farm, that it was doubtful whether it belonged to him or to his neighbor. The neighbor, however, claimed the tree, and prosecuted the man who cut it for damages. The case was committed from court to court. Time was wasted, temper soured, and temper lost; but the case was finally gained by the prosecutor. The last my friend knew of the transaction was, the man who 'gained the cause' came to the lawyer's office to execute a deed of his whole farm, which he had been compelled to sell, to pay his costs! Then houseless, and homeless, he could thrust his hand into his pocket, and triumphantly exclaim—'I've beat him?'

The Coal Business at Pictou.

The number of vessels loading coal at Pictou the present season is unusually great, and vessels are detained nearly a month waiting a turn to load. The ship Osceola, arrived at New York reports having been detained twenty-four days before her turn came.

Antiquities of Ireland.

A foreign correspondent of the Savannah Republican gives the following account of a visit to the Royal Academy at Dublin:—

We had been furnished with a leter to Mr. Williams, who took us to the Royal Irish Academy, where are deposited all the antiquities of Ireland. They occupy several rooms, and consist of almost every article now in use, but of the rudest forms. One of the crowned heads has an artist now engaged in sketching drawings of them all This society has some very ancient MSS., among them a work written in the year 430. It is folded up, and the leaves adhere so closely that as yet only two small scraps have been taken from it, rendered legible and placed between plates of glass.

The date is ascertained from these scraps. They consider it the oldest MS. in the world. There are many other volumes written in the 9th, 10th, 11th, and 12th centuries, and an antiquarian (Mr Curry) is now, and has been for some time engaged in making exact copies of them for the Dublin University. It takes him two years to copy one volume. but he makes a perfect fac-simile. We were introduced to Mr. C. and Mr. Clibborn, the witty librarian. These gentlemen think that the Floridas (which included Georgia and the Carolinas,) were discoverd as early as the 8th century by Irish navigators. Mr. Curry stated that there is a romantic tale in ane of the earlist MS, volumes, called the wanderings of the ship of Marlduin, of Maldoon, describing his wanderings in the Atlantic ocean for a period of three years and seven months. This navigator was a native of the Northern seaboard of the county of Clare. There is no positive evidence of his having touched any continental land during his long voyage. A copy of this tract, in ancient Irish MS., is in the Royal Irish Academy, in the hand-writing of Malmurry, a famous scribe, who was killed in the year 1106. These old MSS. refer to many others of earlier dates, but not now extant. It is a singular fact that arrows of flint, stone hatchets, &c., found in the caves and dug out of the bogs in Ireland, correspond peecisely in shapes to those used by the aborigines of America. They gave us some to compare on our return.

The Modern Ruins of the Modern Athens.

A new movement is making in Scotland towards a renewal of the works, in imitation of the Athenian Parthenon on the Calton-hill of the northern capital. It is now proposed, we are told, to cut away the church and sepulchre clauses from the act of its erection, and to devote the edifice at large to the purposes of a "Scottish Pantheon, or Gallery of Honor?" to receive busts and statues of great and distinguished men, whether statesmen, warriors, poets, men of literature, science, artists, &c., not limited to Scotland or even Great Britain, but open to great men of all nations." The pendiments and matopes, together with the friezes of the peristyle, are to be decorated with national sculpture, and the interior with paintings illustrative of Scottish and British achievements, in fresco, encaustic, or oil, as may be decided upon. A new act is to be applied for, provided for the establishment of £5 shares to the amount of £150,000., instead of £25 shares to the amount of £100,000, formerly proposed. The mere laying of the foundations for the original plan, and the rearing of the picturesque pillars which have so long stood on the hill as at once an ornament and a rebuke, cost, it is said, no less a sum than £15,000

Penal Settlement.

The commander of H. M. S. Bramble has taken possession of New Guinea in the name of her Majesty, which circumstance is strongly and confirmatory of the reported intention of the British Government to found a penal settlement in that vast island.

The Rice Crop.

The rice crop in South Carolina is about completed and is an average one, notwithstanding the damages done by some freshets in August. The corn, potatoe and pea crops are also good.

An old soaker down east accounts for his perpetual thirst, by the fact that he was weaned on ***salt Codfish.***

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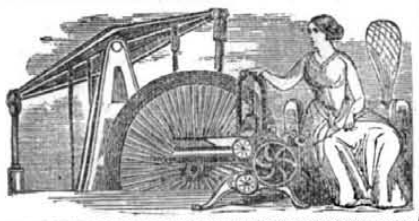


New Inventions.

Improvement in Steam Engines.

Mr. John B. Cochrane, of Brooklyn, has made some very important improvements in the manner of using the steam, or rather in applying steam in engines, whereby the capacity of an engine is greatly increased and with a saving at least of 40 per cent of fuel. The improvement, we believe, can be applied to any engine, and as this is the age of economy and utility, this invention must attract no little attention on account of its value, and be the means of gaining both fame and well deserved profit to the inventor. Successful experiments have been made, we understand, on more than twenty different engines.

New Galvanic Battery.

Mr. J. L. Pickrell, of Greenville, South Carolina, has invented a most complete galvanic battery, whereby the pot and trough batteries are connected, or rather combined, and a very powerful battery is made in a very compact and neat manner. The manner of connecting the different pairs and the whole plan exhibits a mind interested in the study and a ready talent for electric manipulation.

Apple Paring Machine.

Messrs. Bullock and Benson, of this city, have perhaps the most simple and cheap paring machine that ever was invented. It can pare an apple in about a second and hew off the skins as fast as new apples can be fed to it. It costs only two and a half dollars and it will save ten times that amount of time and labor to any family that uses it, in the course of a year.

Curious Pump.

We have been shewn a singular pump the invention of Mr. D. Hinman, of Ohio. It is capable of being a most powerful force pump and also can be turned very easily into a rotary steam engine. Its construction and principle is worth considerable attention and our mechanics who are interested in the progress of knowledge and who like to see what is new, would be gratified with an examination into its properties.

Golden Daguerreotype.

Mr. Harmon, of Cleveland, Ohio, has invented a new method of taking portraits by the daguerreotype, whereby all the outlines are like the common portraits, but having a fine gold color. The process is said to be cheaper than by the old method, but of this we have some doubts.

Hyde's Blind Fastener.

Mr. Joseph Hyde, of Troy, N. Y., the young and ingenious mechanic who invented the Chuck, an engraving of which appeared in No. 43, vol. 2 Scientific American, has now invented a blind fastener, which we think is superior to any that we have ever seen. It is well worthy of a patent and on that account we wish not to give it a more lengthy description than simply to say it is operated by that prince of gearing, neat bevelled cog wheels

New Grain Weigher.

Mr. James Denniston, of Gratis, Preble Co. Ohio, has invented a new and improved machine for weighing grain, whereby the qualities of weight and measurement are justly settled. It is an invaluable invention.

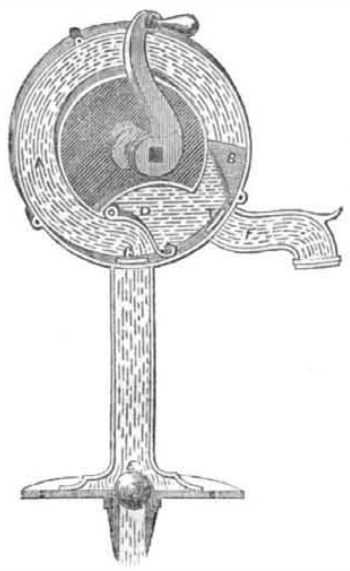
Improvement in Gun Cotton.

The last number of the "Philosophical Magazine," recounts the following method recently suggested and tried by Mr. Coathupe, for increasing the explosive power of gun cotton. The cotton is prepared by immersing it in equal parts of strong nitrous acid and oil of vitriol, and afterwards soaked for a few minutes in a saturated solution of chlorate of potash, then well squeezed and dried. By this additional process the explosive qualities of the cotton are greatly increased. The effect is evidently derived from the large quantity of oxygen gas, the most powerful promoter of combustion, contained in the chlorate.

New Candle Machine.

The St. Louis Reveille noticing the invention of a candle machine lately introduced there, says: "It is a candlestick which by simply turning up the bottom will answer to mould a candle out of any common grease.—The base of the candlestick forms a chamber, in which works a spiral screw, and through this screw the wick passes out at the top of the candlestick, the upper section of which forms the mould. The grease, lard or tallow—in short, any fat matter gathered about a kitchen which will burn—has but to be poured into the lower chamber of the candlestick, and by turning the base with your hand you can form a candle, with a dry wick, which will burn like sperm. The length of the candle you can regulate to your own taste, by simply taking a turn more or less. Enough wick may be placed in a box in the base of this neat machine to last a month. There is no running of grease or waste about this invention—all the grease produced about a house can be saved to a valuable purpose by the possessor of the machine. It is no cumbersome affair, but a neat, ordinary sized candlestick."

Rotary Pump.



Explanation.—A, represents the circular chamber with the outside removed, into which the water is drawn through the opening C.—B, the piston attached to the face plate covering the whole side and made to revolve by the crank, thus moving the piston around within the chamber A. D, valve, which is raised by the wedge-like piston allowing it to pass under it, and falls back when passed to its present position, thus forming a vacuum between them. E, valve in the form of a ball, which raises when the pump is in action and falls when at rest, forming the most perfect and durable valve possible. F, outlet.

This pump is the invention of Mr. J. S. Alcott, of Oriskany Falls, Oneida Co., N. Y.—There are rotary pumps common enough operated by a crank moving a shaft which works bevelled pistons shaped like a screw all on one centre, which forming a vacuum presses the water up the discharge tube. These generally have the working chamber placed in the well or cistern. Mr. Alcott's pump is very different, the chamber being very easy of access to repair, &c.

Greek Fire.

Mr. Brown, of Ohio, the inventor of the Greek Fire, obtained from our government an apropriation of ten thousand dollars for the purpose of putting the efficacy of his Greek Fire to a decisive test, and on Saturday evening the 16th inst., a grand public experiment was made in full view of the President's House. The Washington Union describes it thus:—

"A boat with the engine in it, for throwing off the fire, was towed near a tall mast, with barrels of combustible materials fastened upon it from top to bottom. When within 15 or 20 yards of the mast, a stream of fire was thrown upon it, and set fire to the barrels and the combustibles in them, which were entirely consumed. We trust that some particular and official description may be given of this interesting experiment."

File Machine.

Most of the files now used in this country are imported; being made in England by hand with great labor. The Portsmouth Journal states that Mr. Richard Walker has invented and patented a machine, now in operation, which will ere long make files an article of export instead of import. Three machines which can be tended by one man, can complete twenty files an hour. A steam engine of five horse power can put at least fifty of these machines in operation.

The machine is about five feet long two feet wide and three high, and can be operated almost as easy as the turning of a common grindstone. The blank intended to be made a file, is placed in a central position, the chisels strike both sides of the blank at the same time, making in common speed two and three hundred cuts per minute. The gearing is so adjusted that the chisels accommodate themselves to the thickness of the file, so that the cut is equal in depth throughout; and the regular progression of the file insures perfect regularity in the distance of the cuts. A ten inch file of medium fineness is cut on both sides in three minutes—in three minutes more the traverse cuts are made, and it is again passed once through to cut the sides.

We are glad to see this invention for one thing.

Steam Improvement.

A patent has been taken out by Mr. Eddy, of Auburn, New York, for a simple and cheap and useful invention, effecting a large saving in the fuel used for steamboat boilers and manufacturing purposes. The air for draft is admitted almost directly upon the centre of the wood or coal, instead of through the large open space in front of the fire place. The gates are removed, and in this item also those who are familiar with the subject will see that an important saving is made. The air is admitted by a hole on each side of the fire and by one in front.

New Printing Press.

Mr. C. W. Haven, a practical printer, of Lewis county, N. Y., has invented a new and improved hand press, which appears to be very simple and promises to be very economical as it can be made at much less expense than those now in use.

Chamberlin's Draughting Board.

The Draughting Board of Mr. H. W. Chamberlin, of Pittsfield, Mass., an engraving and description of which appeared in No. 2 of this volume of the Scientific American, has been justly and highly commended by some of the papers in that beautiful village, and also by the Committee of Inspection at the Berkshire Fair.

New Cannon.

The Duke de Montpensier has found favor in the eyes of the French, by inventing a death-dealing instrument, the first-fruit of his genius. It is a cannon which may be taken to pieces, and can be carried by men. The construction of it has been his dream from boyhood. Fit occupation for the mind of a prince! It is to be employed against the Arabs.

Patent Coat.

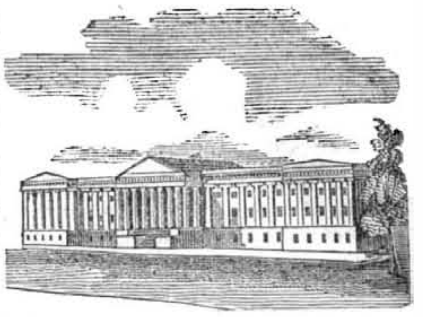
At the Grand National Exhibition of Manufactures and works of Art, held last month in Brussels, Belgium, there was exhibited a coat cut out of one piece, without either join or seam but at the sleeves. It was a full dress coat and of so fine a texture that it could be carried easily in the pocket of a gentleman's pantaloons.

We Want a Machine for Eating.

"The Mother's Assistant," is the name of a new invention by a person at Nantucket, intended to supersede the "Baby Jumper." It is portable says the Inquirer, so that it can be carried from room to room, and put away in a corner or a closet at night; and it is so contrived, that the child when placed in it can make quite a journey round the fixed centre, and thus exercise his legs, and "change the scene."

Important Discovery.

A Neapolitan surgeon, named Cervelleri, is said to have succeeded in dissolving stone in living persons by the use of electricity.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending Oct. 23d, 1847.

To Cyrus H. McCormick, of Steel's Tavern, Virginia, for improvement in Reaping Machines. Patented Oct. 23, 1847.

To John Brown, of Memphis, Tennessee, for improvement in sawing Hand Rails for stairs. Patented Oct. 23, 1847.

To Joseph W. Strange, of Taunton, Mass., for improvement in machinery for laying roving in cans, &c. Patented Oct. 23, 1847.

To William Wheeler, of Troy, New York, for improvement in Bolts for doors. Patented Oct. 23, 1847.

To Kasimir Vogel, of Lowell, Mass., for improvement in machinery for making Weaver's Harness. Patented Oct. 23, 1847.

To Winfield Crichton, of Diamond Grove, Virginia, for improvement in Cotton thinning Ploughs Patented Oct. 23, 1847.

To Hugh McLean, of Paterson, New Jersey, for improvement in regulating the speed of drawing heads. Patented Oct. 23, 1847.

DESIGNS.

To John F. Rathbone, of Albany, New York, for Design for Stoves. Patented Oct. 23, 1847.

To Sam'l. W. Gibbs, of Albany, New York, for Design for Stoves, (having assigned his right to Jesse C. Potts.) Patented Oct. 23, 1847.

To Charles Guild, of Cincinnati, Ohio, for Design for Stoves. Patented Oct. 2, 1847.

Patents.

Of the 540 patents granted last year, New York was granted 197; Maine 6; New Hamshire, 6; Vermont, 14; Rhode Island, 3; Connecticut, 28; Massachusetts, 56; New Jersey, 9; Pennsylvania, 92; Ohio, 20; Michigan, 5; indiana, 10; Illinois, 9: Iowa, 1. The Slave States stands District of Columbia, 9; Delaware, 2; Maryland, 18; Virginia, 13; North Carolina, 8; South Carolina, 1; Kentucky, 5; Missouri, 4; Texas, 2.

INVENTOR'S CLAIMS.

Wool Burring Machines.

Invented by William Cundle, of Paterson, N. J. Patented 8th August, 1847. What he claims as his invention, and secures by Letters Patent, is: First, making the spaces or slots between the teeth of equal width, from the point to the bottom of the teeth, when this is applied to teeth, the peripheries of which are concentric, so that when the rings of the teeth are all put together, the outer portion of the space shall be of the same width as the space within, and the surface of each tooth from point to back, shall be a segment of a cylinder and concentric, substantially as described. And finally he claims making shears or guards, for cleaning off the superfluities, of sheet metal bent in semi-cylindrical forms, and connected together by the edges and with the included cylinder by the convex surface, substantially as described.

Improved Plough.

Invented by George Page, of Washington, D.C. Patented 7th August, 1847. What he claims as his invention, and secures by Letters Patent, is the employment of a concave circular revolving mould board for a plough, constructed substantinally in the manner and for the purpose set forth. He also claims the outer brace and scraper in combination with the above, for the purposes set forth; and, lastly, he claims the employment of the friction rollers, in combination with the moving mould board, substantially as above specified, for adjusting the heat of the mould board out or in to regulate the furrow.

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NEW YORK, OCTOBER 30, 1847.

Progress of Science and Mechanical Art.

Progressive Science may well be compared to an infinite number ot concentric circles commencing from a central point and whirling outwards without limitation, boundless and unexplored still. Every new discovery tells us that science is yet in its infancy. True science is but collected and arranged experience regarding certain phenomena of nature. If practice brings out no new result and if it developes nothing more than has been well known before, then we might well conclude that perfection in all things was attained. But instead of this being the case, we behold ourselves surrounded with phenomena as inexplicable to our reasoning faculties, as the nature not the powers ot the mind, is to the mind itself. Who can yet tell what light or galvanism are, although the former has guided our footsteps since the dawn of creation and the latter has engaged the attention of the most grasping intellects The farther we travel from the old well-beaten path of knowledge, the more do we perceive the truth of this allegment. What was true one century ago, is not truth now, and what is considered truth now, in a hundred years after this, will be considered as erroneous. The world now moves; it once stood still. It is now a sphere; it was once a plain. It is now a waiting maid upon the sun; the sun once waited upon it.

In Natural History, Botany, Natural Philosophy and Practical Mechanics, the changes have been as great as in Astronomy. Every person who has had any experience at all, is perfectly convinced of this. The past generation, or rather those who belong to the past, but who are living with the present, know, and feel the force of what we say. Compare the Indian in his wigwam with the American in his Grecian Cottage and we will be able to judge comparatively of what was and what is. Compare the Hindoo and all his ancient knowledge with the Englishman, whose forefathers were painted barbarians when the Hindoo's fathers were famously civilized, and we will have another, and a more striking example still, of what was and what is. Every nation now distinguished for greatness and power, has encouraged and does encourage, Scientific and Mechanical attainments, and we can confidently say that just in proportion as a nation or people progress in true knowledge so do they become great and powerful. The fertility of soil and natural advantages for commerce are not enough to make a nation or people great. A cultivation of useful knowledge a progress in science and art, in short, practical attainments in every branch of science, mark the great difference oetween the people of the Republic of North America and the people of the Republics of South America.—We know that we have learned much. We know that there is much yet to learn, and we know that we can learn. This is the secret of success. No person who has visited our Fairs for the encouragement of genius, could have failed to perceive the great improvements made year after year, in all branches of Art. This very circumstance is proof positive that the future will as far surpass the present in productive greatness as the present surpasses the past There is one reform, however, which we should like to see carried out at the exhibitions of our Fairs for the encouragement of genius in the producing classes, so that the talent that is in the masses, that is displayed by the masses, may have a share of just praise. There are many splendid pieces of art exhibited at our Fairs, having only the name of the person who entered them, or the factory or shop where they were manufactured, printed upon a card to tell where they come from. Now it is well known that to the labor of one or more ingenious and good mechanics in our manufactories are we indebted for the most beautiful and best productions to be seen at our Fairs. We would recommend that the names of the mechanics who worked upon the articles displayed, be engraven or marked upon the same, so that they should receive the praise and notice they justly deserve. This custom is practised in France, and of our American Mechanics we say, "honor to whom honor is due." We believe that if this policy was pursued by manufacturers and agents, a great stimulus would be given to our workmen to excel. It would make them think more of their manhood, it would make them respect their employers more than they do, and it would make the employers look upon their workmen with a just and laudable pride. In short. this plan carried out, such an impetus would be given to taste, industry and skill that in a few years we would leave all other nations far behind in the progress of science and mechanical art, for then our mechanics and artisans would have the reward before them, of not only pay but honor also for their skill and labor.

Smithson.

At the late meeting of the Association of American Geologists, Professor Henry gave a brief account of the founder of the Smithsonian Institute. He was a natural son of the Duke of Northumberland, of an amiable disposition and much devoted to science.—He was a great chemist, and on one occasion he observed a tear trickling down the cheek of a lady which he caught on a piece of glass, lost one half and analyzed the other, and discovered a microscopic salt. He was the author of more than twenty original memoirs on various subjects and felt proud of his scientific attainments. He had a soul far more noble than his father the Duke, and felt his own worth, as every talented man does, and on one occasion wrote thus: "The best blood of England flows in my veins—on my father's side I am a Northumberland—on my mother's I am related to kings. But this is of no consequence. My name shall live in the memory of mankind, when the titles of the Northumberlands and Percys are forgotten." And truly shall his prophecy be fulfilled. Professor Henry said he could find no evidence that he had written this in view ot the establishment of an Institution.

Economical Saw Mill.

The Cincinnati Atlas says, nearly everybody has heard of the saw-mill somewhere "out West," which was driven by the "force of circumstances" This is as desirable a motive power for a mill as could be thought of, not only economical but having the very fine quality as every body knows, of gaining force as the money market tightens. We travelled West a few miles the other day, and we found one driven by a power nearly as economical. Mr. Watkins, of Aurora, Ia., has a steam saw mill lately put in operation, in which the only fuel is the dust made by the mill itself. There are two boilers, two engines, two saws, and the average work ot this mill is about two thousand feet per day. Upon occasion this amount ot work can be nearly doubled. We have heard of mills where the boilers were heated by the sawdust and slabs, but here the slabs are applied to other uses, and none of them used for fuel except a very small quantity when the dust has become very damp from wet weather.

A Veteran Flag.

The Old Washington Flag which was first hoisted on the Battery at the Evacuation of this city by the British troops at the close of the revolutionary war, waved over the assembled throng last Tuesday at the laying of the corner stone of the washington Monument. Sixty-four years have elapsed. and what a change has passed over this island! The sword and the musket have been laid aside, and under the banner of Peace has grown up a mighty City—and this same flag has waved alike over our marshaled Revolutionary fathers and their grateful descendents who were commemorating their deeds of valor and patriotism. This flag is the property of the American Museum, where it is now exhibited.

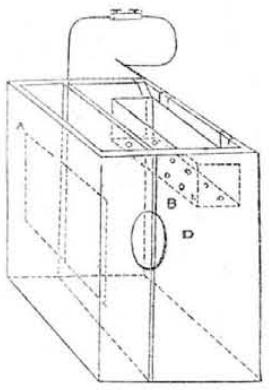
Spindles.

It is computed that there are 27,585,000 spindles in operation in the world, of which 2,500,000 are in the United States, and 17,500-000 in Great Britain.

Electrotype and Electro-Gilding.

NO. IV.

We have previously described the method of making a constant battery, or what is generally called Daniel's battery, by having a rod of zinc covered with quicksilver placed in a cell of plaster of Paris and communicating with a copper cell by means of a copper wire, the action of acid being necessary to keep up the communication. But a single cell like the one in this engraving can perform the same



electrical manipulation, without either acid or mercury, although in a more feeble degree. Common salt in the zinc cell A, and the sulphate of copper in the cell D, where the mould B is placed, will deposit the copper on the mould, although common zinc in A is used instead of an amalgamated rod. A single cell apparatus may consist of a wooden box well varnished in the inside and divided by a partition of soft maple boiled in sulphuric acid and dried. The box must be divided unequally, one quarter only for the zinc and salt, and the three quarter cell for the copper plate and the solution of the sulphate of copper. The single cell is not recommended but for small objects, and seals can be electrotyped by the simplest form of the single cell. Just let a warm wire be pressed into the edge of a seal which is then covered with plumbago, the other end of the wire twisted into a little piece of zinc and the wire bent up horse-shoe fashion; a little diaphragm of card sewed up, having the joinings secured with wax, is filled with water containing a pinch of salt, or a few drops of acid, and this is placed in a tumbler of sulphute of copper and the seal immersed in the copper solution, while the other end of the wire with its attached metal is within the other liquid. The electrotypes of seals are easily backed up with lead. When fresh from the solution let them be washed with rosin dissolved in alcohol, after which there will be no difficulty in causing the adhesion of tin or soft sodder. A battery apparatus, is an invaluable improvement on the old method, and in our next we shall give a description of its operation and an engraving of the apparatus.

Chemical Effects on Lightning.

During an unusually severe thunder-storm an extraordinary circumstance occurred on one of the Blackfriar's bridge barges, London. The barge was loaded with coal, containing as usual portions of iron pyrites; at some period during the storm, a current of electric fluid appears to have passed through the barge in an oblique direction; and, where it has come in contact with any of the pyrites or sulphuret of iron, the latter has become converted into green sulphate of iron, or green vitrol of commerce. The line where the electric fluid traversed the coal, appeared charred, and Mr. Hoppe much regrets that the whole was not preserved in the state it was first found, to have given an opportunity for scientific investigation. Here is proof that the metallic sulphurets can be converted into a soluble metallic salt by electricity, and may induce further experiments on the subject of smelting by that agent.

Co-operative Associations.

There are three co-operative industrious associations in Lockport, N. Y., and all doing well. There is the Journeymen's Shoe store, Weed & Co.'s machine shop, and W. Mack & Co.'s Union Furnace. Mack and McLelland we know to be first rate mechanics and fine men.

We have heard that the Yankee Doodle is not yet dead. It was improving. Why should it die?

Faneuil Hall Boston.

This structure is one hundrd and seven years old. On the 4th of July 1740, Peter Faneuli, a distinguished merchant in Boston, made an offer, in a town meeting to build a market house, the town being without one. The offer was accepted by a vote of 367 to 370—by so narrow a chance did Mr. Faneuil secure immortality to his name by connecting it with the cradle of Liberty. The building was begun the next year, and finished in 1742. The generous donor so far exceeded his promise as to add a spacious and most beautiful Town Hall over it, and several other convenient rooms,' as the descriptions published at that time represent them. In commemoration of his generosity, the town, by a special vote, conferred his name upon the Hall, and 'as a further testimony of respect, it was voted that Mr. Faneuil's picture be drawn at full length at the expense of the town, and placed in the Hall.'

Mr. Faneuil died on the 3rd of March, 1743. The first meeting of the inhabitants of Boston held in Faneuil Hall, was on the 4th of the same month, for the purpose of a funeral oration on the donor.

The Ticklishness of Credit.

A London exchange says a curious scene took place on the first day of the opening of sessions of the Central Criminal Court which strongly marks the ticklishness of credit in time of a speculative crisis. One of the persons summoned on the grand jury, when called on to be sworn, objected to take the oath. The Recorder demanded his reasons, whereupon the summoned juror, in a most earnest and piteous manner, declared that he was embarked in business as a dealer on the Corn Exchange, and that, owing to recent events, the locality had become so "feverish" that any man who was absent, even for a day, was set down as either defunct or insolvent! The cogency of the plea was acknowledged by the learned judge, and the prayer be excused accordingly granted.

New Steamboat.

A contract has just heen closed with Messrs. Secor and Co. engine builders, for the engines for a steamboat four hundred feet long, to ply between this City and Albany. She is to make the passage both ways in twelve hours, leaving here in the morning and returning in the evening of the same day.

Mechanic's Fair.

The Fair of the Mechanic's Institute of Chicago, Ill., opened last week in the new block of stores recently erected by Messrs. G. W. Smith & Co., on State st., and was worthy of the yet to be great City of Chicago.

Valuable Estate.

The estate of the late Gov. Fenner, of R. Island, has recently been sold to Samuel Dexter, Esq., for $124,950. The estate is centrally situated to Providence, and comprises over an acre of land. The Providence Journal states that the sale was the largest one of a single lot ever made in that city.

Scientific American---Bound Volumes.

The second volume of the Scientific American, bound in a superb manner, containing 416 pages choice reading matter, a list of all the patents granted at the United States Patent Office during the year, and illustrated with over 300 beautiful descriptive engravings of new and improved machines, for sale at this office—Price $2,75. The volume may also be had in sheets, in suitable form for mailing—at $2.

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A Glance at the Heavens.

(*Continued from our last.*)

Whilst the paths of the planets are nearly circular, the paths described by such of the comets as attend upon our sun (for there are some that do and some that do not) are extremely elliptical, that is, much longer than they are broad. A great number of these bodies inhabit spaces some of whose revolutions have been calculated to take more than 3,000 years, and there is one that revolves in so short a time as three years and a half. Between Mercury and the Sun, thirty comets have been observed to pass, and if the whole space between Uranus and the Sun were traversed by comets in the same proportion, there would be three millions and a half of them. It is a wonderful instance of the law of attraction that its power should be felt at a distance forty-four times more remote than that of Uranus. And this is the more strange since the heads and trains of comets are of extreme rarity. Comets have passed within such distances of the planets that had they been possessed of a density approaching that of any other body in the heavens, they would have disturbed the bodies they came near, but not the slightest disturbance has been detected. Stars have been seen through the heads of comets. The tail of a comet increases in size as it draws near the sun, and it usually passes so near that the people of the earth lose sight of it amongst the solar beams. The tail has occasionally extended itself so much that it must have measured a hundred millions of miles. The retardation which some of these bodies have suffered in again coming towards their point of attraction has given rise to the notion of the *cosmic æthar*, a subtle medium pervading all space, and checking the movement of other bodies by the inert resistance it offers to their transit through it. As to the nature of comets philosophers seem quite at a loss. Some suppose them to be wholly gasseous. It has been ascertained that their light is borrowed from the sun. If we could look down upon our solar system from a station outside of it. yet so that the whole of the motions of the parts could be seen at once, what a singular prospect would it be to observe the comets threading their way amongst the planets to their destined parihelia and aphelia. Although there is no proof that comets have influenced for good or ill any of our planets, yet the superior masses of these latter have evidently power over comets. There was a comet that appeared in 1770 whose orbit was calculated at five years and a half. Since that time it has never been seen; and astronomers have calculated that it having come into the neighborhood of Jupiter a few years before, its orbit became thereby changed into a short time; and that a similar vicinity afterwards converted that short orbit into one of a duration like what it had previously possessed.

Well, we have now obtained a rude idea of the portion of space which our planetary system occupies. We may now turn to those bodies which lie beyond its boundary. We see at once that the fixed stars, as those are called which are extraneous to the solar system, are not only distributed in unequal quantities over the face of the sky, but are possessed of very different magnitudes. These which are perceptible by the naked eye, are classed by astronomers, for the sake of convenience, in 6 magnitudes, whose emitted light is represented in numbers from 100 to 1. In comparison with the distance of these stars, the immense circle which the new planet, or Uranus, marks out in space, becomes diminished to a little ring. Many difficulties exist in the way of an accurate computation of the distance of those objects from us. A recent explorer tells us that there is one star in the constellation of the Swan, which he calculates to be 658,000 times the earth's distance from the sun To make this admeasurement a little more plain, we have seen that light travelling from the sun to Uranus, would occupy 2 hours 4 minutes—the light that travels from the star referred to, consumes 10 1-4 years before it reaches us!

Let us now consider the fourth class of objects which the naked eye discerns in the heavens—objects that seem like luminous vapors, nebula as they have been called. What are we to make of these? We apply our instruments and lo; not only thousands of stars heretofore invisible, reveal themselves, but those spots of mist prove to be star-dust. Stars so closely compacted, so near in appearance to each other, as to shine with a common, not a separate lustre—a wisp of shining matter—and that vast arch that puzzled the unassisted vision of antiquity, is composed of the same material. Now, mark! every one of the stars composing the Milky Way, and the scattered nebula, is a sun, and as such we may easily conclude that it has a separate system of planets, which is totally invisible to us; and now we seem to have reached to something like an end, but no, though instruments succeeded in penetrating through the veil of several nebula, yet there were many that had been already seen, and many that had not been seen, withstood their power. There were many that could not be resolved; the closest investigation merely threw the same appearance over a larger field; mists they were at first, and mists they remained.

(*To be continued.*)

The Burning Wells of Kenawha.

The burning Salt Wells of Kenawha, Virginia, are a great curiosity. The immense discharge of combustible gas, the low temperature of the water coming from a depth of two thousand feet in the earth, and the great force of the ascending column, all combine to render these wells interesting and wonderful.—Some of these wells have, it is said, exhausted the subterranean gasometer with which they are respectively connected. I am inclined to the opinion that the exhaustion of the gasometer was not the cause of the cessation of the discharge of gas, but that the shaft through which the gas and water passed, has been so encrusted as to close it altogether, and thus prevent the escape of both the gas and salt water. The salt made at Kenawha annually, is equal to about two millions of bushels. The coarse alum salt is made there. The bitter water which is separated from the salt in the process of manufacture, is of great specific gravity. Great improvements have been made at Saltville, where these springs are located. In a new process of manufacture which has been adopted one half the fuel is saved, and two-thirds of the labor, and a salt of a very superior quality produced. Formerly two thousand dollars worth of kettles were broken in a year. Now no kettles are broken. Formerly the cake inside the pans was cut out with iron picks. Now fresh water is heated in the pan, and the saline cake removed. Thus Yankee skill is reaching the bowels of the mountains of old Virginia.

No Proof of the Present Existence of a Single Star or Planet.

Sir John Herschell, in an "Essay on the Power of the Telescope to penetrate into Space," a quality distinct from the magnifying power, informs us that there are stars so infinitely remote as to be situated at the distance of twelve millions of millions of millions of miles from our earth; so that light which travels with a velocity of twelve millions of miles in a minute would require two millions of years for its transit from those distant orbs to our own:—while the astronomer who should record the aspect of mutations of such a star, would be relating, not its history at the present day, but that which took place two millions of years ago.

I Shall be a King.

The late Duke of Hamilton had two sons. The eldest fell into a consumption, when a boy, which ended in his death. Two ministers went to see him at the family seat, near Glasgow, where he lay. After prayer, the youth took his Bible from under his pillow, and turned to 2 Tim. 4: 7.—"I have fought a good fight, I have finished my course, I have kept the faith; henceforth there is laid up for me a *crown of righteousness*;" and added, "this sirs, is all my comfort!" When his death approached, he called his younger brother to his bed and spoke to him with great affection. He ended with these remarkable words: and now, Douglas, in a little time, you will be a Duke, but *I shall be a King.!*"

Fourteen thousand emigrants have lately left France for Algeira.

Vision of Birds.

As birds cannot get spectacles, Providence has given them a method of supplying the deficiency. They have the power of contracting the eye, of making it more convex, so as to see specks which float in the atmosphere, and catch their food; and also of flattening the eye, to see a great distance, and to observe whether any vulture or other animal is threatening to destroy them. In addition to this they have a film or coating which can suddenly be thrown over the eye to protect it, because at the velocity at which they fly, the least speck of dust would act upon it as a pen knife thrust into the human eye. The film is to protect the eye, and the same thing exists in the eye of a horse. The horse has a large eye, very liable to injury from dust. This film is called the haw, or thin eyelid, and if you watch it closely, you will see it return and descend with electric velocity. It clears away the dust and protects the eye from injury. If the eye should catch cold the haw hardens and projects, and ignorant persons cut it off and thus destroy this safeguard.

Water.

A calculation on the weight of water, and the superficial area of ground, proves that a body of water one inch in depth, and covering an entire acre, will weigh one hundred and one tons. Speaking of the recent storm, and of the enormous weight of the descended rain, a writer in the National Intelligencer properly speaks:

"How overwhelming is the consideration of the physical law by which this volume has been suspended over before it is permitted to discharge itself before us! And how much more awful and humbling ought to be the reflection when we look up to that power which controls and directs this law, and which restrains its liability by a sudden descent to destroy us in an instant?"

Honor to whom Honor is Due.

On the 7th of September M. Leverrier, the astronomer, made a visit to St. Lo, his native place (a provincial city, about 40 miles from Paris, in the Department in Manche.) The great Bell of the church of Notre Dame announced his approach to the city As soon as he descended from the carrige, M. Leverrier went to visit the house in which he formerly lived at St. Lo. At half past three the Municipal council went in a body to the house of Dr. Lebrun to meet this young and learned astronomer, to whom the musicians of the National Guard gave in the evening a serenade, which attracted a crowd of listeners, The next day at ten in the morning. the officers of the National Guard of St. Lo, assembled for the occasion paid a visit to M. Le Verrier.

The Macedonian.

On the 2nd of September a Grand Soiree was given to Commodore DeKay by the Odd Fellows of Greenock Scotland, a large assemblage of ladies and gentleman being present. The commodore made a clever speech, when his health was proposed, in which he adroitly complimented the ladies, the Odd Fellows and the good people of Greenock, Mrs. DeKay's grand father, Henry Eckford, having served his apprenticeship to a ship-builder there. On the following Monday, a dinner was given to the commodore and and officers by the "Central Board of the Highland Relief Fund."

A Spotted Negro.

The *Raleigh Standard* of the 13th inst., published in North Carolina, has the following: on Saturday last we were invited by Mr. Northam, of Johnston County, to examine at Lawrence's Hotel a negro boy he had in charge—and a very strange looking boy he is. He is as black as the negro ordinarily is, and has white rings around his arms and legs; the skin upon his breast and abdomen is white, and there is a white streak commencing at the top of his forehead and running an inch or so up his head, the hair on this part of his head being as white and as soft as lamb's wool. The white is remarkably clear, and contrasts singularly with the black skin, which covers the other parts of his body. This boy is three years old, was born in Johnston county, this State, and seems to be smart for one of his age.

PHILADELPHIA CORRESPONDENCE.

Dear Sci.—

The seventeenth annual exhibition of the Franklin Institute commenced on the 19th inst., and it opened auspiciously for this old Institution.

Among the articles worthy of notice is a rotary Blast Generator, made by a Mr. Lloyd, which gives a very strong blast with far less power than any other blast that I have ever seen. Next there is a valuable machine invented by Mr. George Storrs for drying corn in the ear, and not a great distance from it a curiously constructed model of a brick machine, by Mr. S. Usick. There is also to be seen the patent steam boiler of James Montgomery, who has also secured a patent lately for a new Propeller. I have seen a description of this boiler in the Scientific American, and can only add that your remarks were just and true respecting it. There is also a splendid cutting machine for the United States Mint, designed by Franklin Peale and made by J. S. Eckfelt. Fitzgerald's portable mill is not to be passed over slightly. Although it is not new, yet it has no superior of the kind. There are two patent steam hammers, Lewis Kirk's of Reading, Pa., an American invention, and Nasmyth's, a valuable English invention. The two are very different—the latter striking square, the former more angular.

There is a great display of tools and mechanical instruments, but deeming the present description long enough to be interesting, I subscribe myself, Yours, &c.

Philadelphia, Oct. 25, 1847. G. R.

The King of Prussia's Economy.

The royal table was served like that of any private gentleman, no article of expensive luxury appeared, because the sovereign cared little for the luxuries of the table; it was therefore, something uncommon for the king to ask a guest who was sitting at the table one day, "How do you find the soup?" The guest replied, "I find it now as I always do when I have the honor of dining here,—very good." "Do you not find anything remarkable in it?" "No, your majesty." "What do you take those webs of thread for?" "For vermicelli, your majesty,—for very fine vermicelli paste!" "Charming," said the King, laughing heartily; "paste! I must tell you something about it. These are Chinese birds'-nests which my sister the Queen of the Netherlands sent me as a present. Every nest costs a ducat (ten shillings). Miserable waste, to give so much for such a thing? But people have crotchets and birds' nests in their heads sometimes. You are right; vermicelli does quite as well. The poor have not even the opportunity of tasting that."

Missouri Lead Mines.

The supply of these mines seems to be falling off, as there was a decrease in 1846 of one million and a half of pounds, and there is now wanting eight millions of pounds to make the produce of this year equal to that of 1846.

Mr. Nigre, a Frenchman, who has carried on a large silk manufactory in Vienna for seventeen years, has lately left for Erike, in Asia Minor, where he is charged to establish a silk manufactory for the Turkish Government. He hes taken with him 150 French and German workmen, and the machines he will require have been forwarded.

Potato Rot.

We hear of the progress of the potato rot in Canada, New Jersey, Vermont, and Western New York, in addition to portions of the country which have before been mentioned. The Rochester American states that the effluvia arising from some fields is absolutely sickening.

Aerial Navigation.

A Mr Pennington of the "Old Dominion," not having the fear of common sense before his eyes, has published proposals for the formation of an Aerial steamship navigation company. If the vessel proves as light as the visions of the projector, they will need an extra amount of ballast.

The eruption of Vesuvius still continues, but the stream of lava has changed its course and now flows to the right of the crater instead of the left.

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TO CORRESPONDENTS.

"A. W. S. of Cincinnati, Ohio"—The information you desire will be found on another page. Mr. Walker, we believe, has sold out his right to a Mr. McIntyre, in Providence, R. I.

"J. Y. S. of Pa."—We have answered you by mail.

"L. V. B. of Boston."—You will see in the last No. of the Scientific American, the patent claim of C. Horst, New Orleans, for a Rocking Chair and Fan, but the Bellows is another invention and we shall notice it appropriately next week.

"J. T. of R. I."—Your Magnetic Battery can no doubt be applied as a moving power but we do not think it can ever be of much avail, although some new application may open our eyes. We have had two separate descriptions of nearly the same application as yours and in both instances we advised further experiments. The subject is interesting and we trust you will pursue it farther, when we shall be happy to notice your successful experiments.

"D. P. of R. I."—The very principle of your Door Fastener was exhibited at the late Fair in this city, only it was applied to a window blind. Your other inventions are ingenious, and the application of the planks for a horse power passing down the incline and sliding to the one side horizontally, we have never seen nor heard of before.

"L. B. of N. Y."—We think highly of your Diving Bell. There can be no doubt at least of its usefulness and utility. As it regards a patent, we shall only say that if the invention were ours, we should apply for one.

"L. P. of Michigan."—Sogner wrote a treatise on the motion of tops, which was published in 1755, but Euler investigated the subject still further. His work we commend to your attention. But for a more plain and simple exposition, see either Lardner's or Renwick's Mechanics.

"C. S of Mass."—Your machine for scouring knives is a useful invention. We have not seen any of the same kind, but there are others in use.

H. W. C. of Mass."—We are much obliged to you for your kindness.

"D. of Cincinnati, Ohio."—That electricity or magnetism may have more to do with the law of gravity than many are apt to suppose is our opinion also. The very fact that proves this, is the attractive force of the magnetic pole. We cannot, however, reduce the law to figures. Expeditions to make observations on the dip of the needle, prove that there is much yet to learn on this subject.

"J. E. of Ohio"—We will give your propeller due attention and answer you by mail. From a hasty glance we perceive that you have got over one of the evils we have pointed out.

"J. M. H. of Ohio."—Yes; you may send at our expense.

"F. T. of Savannah."—We cannot furnish any complete sets of Vol. 1, nor but about 12 different numbers.

"B. McN. of Missouri."—The composition is kept secret, hut it is supposed to be magnesia, sal soda and Bath brick dust.

"S. M. of Maryland."—If you write to Mr. Farnum, 26 Fulton st., N. Y., stating the capacity of the pump required, you will get all the necessrry information.

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Union Magazine.

This periodical, although new, bids fair to outvie all the other Magazines published in America. The November number is received and like its former ones is truly splendid.—Each number is worth a year's subscription.—Israel Post, publisher, 141 Nassau st.

Portrait of Gen. Taylor—Third Edition.

The demand for our editions of the above, the only true likeness of that brave General, has been so great, that we have been obliged to issue another large edition. We have before published two editions of 5000 each, but the demand continues so great that we are getting a third edition, which will be ready for delivery on Monday. Those who have sent us money and have not received their portraits, are informed that their orders will then be filled. See advertisement.

Hartson's Improved Lathe.

It will be remembered that we gave an illustration of this lathe in our last number.—We have since been informed that it took the first premium at the great Fair held in this city last week.

Advertisements.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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For terms and particulars, apply to W. A Ashe, at his establishment, 133 Fulton street, opposite the Sun Buildings. o30 1m

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By this new arrangement they secure to the columns of the Island City a greater variety of reading matter, and in addition to their regular series Original Novels and Romances, they will introduce several new features, among which will be found:—

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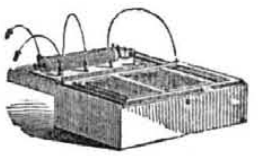

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☞ The following is an extract of a letter from Dr William Miller, No. 317 Broome st., New York

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B. B. FRENCH, Washington City.
JOHN W. NORTON, 23 South st. New York.
THOS. M. CLARK, 90 South st. New York.
o23 tf

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THE Subscriber is now manufacturing a superior article of Large Turning and Screw Cutting Lathes, Drilling Machines, &c. to which he would respectfully call the attention of Machinists and others requiring the above articles. Also, Machinery of every description, manufactured to order, at 42 Gold street, New York. G. B HARTSON. o2 1m*

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Composition of theBrown Venitian Glass with Gold Spangles.

To 12 parts of pure white sand, 7 of pure pearlash, of saltpetre 8 parts, half a part of borax, a quarter part of arsenic, and red lead 2 parts. In the proportion which one of these parts bear to another, mix them with an ounce of crocus, and fuse them until the iron be vitrified and the glass of a deep transparent yellow brown color. Then powder it and add two pounds of powdered glass antimony, mixing them all by grinding together.

Take part of this mixture, and rub it into four score or one hundred leaves of the counterfeit leaf gold, commonly called Dutch gold; and when the parts of the gold seem sufficiently divided, mix the powder containing it with the other part of the glass. Fuse the whole then with a moderate heat, till the powder run into a vitreous mass fit to be wrought into any of the figures, or vessels, into which it is usually formed; but avoid a perfect liquefaction, because that destroys, in a short time, the equal diffusion of the spangles, and vitrifies at least part of the matter which they are composed, converting the whole to a transparent kind ot olive colored glass.

This kind of glass is used for a great variety of toys and ornaments.

Nature and preparation of substances for Tinging Glass.

The substances employed for tinging glass are mostly of a metallic nature. The substances that have been used for producing an opaque whiteness in glass, are calcined tin, calcined antimony, arsenic, bones, and common salt. The substances for red, are gold, copper, magnesia and antimony. For blue, copper. For yellow, silver, iron, antimony, and magnesia, with tartar. For green, the compositions for yellow and blue mixed. For purple, the substances that make red and blue combined. For orange, the red and yellow combined. For black, magnesia, copper and iron in various combinations.

Wonderful Discovery.

Dr. Sylvester an Italian by birth, and an eminent chemist, has discovered a mode of hardening the human body to the consistency of stone or solid marble, which he is about to exhibit in London. His specimens have excited great astonishment. One was the head of a lady, with the hair parted and dressed, retaining its flexible properties and colors, although the surface from which it grew resembled stone—somewhat like a wax model; also a child's head, plump and dimpled as in life, and a tongue petrified as if it had never uttered a sound The petrifying process is said to be simple and cheap. A boquet of choice flowers—the juices first extracted by a pneumatic process—preserved their natural colors, but were as hard and rigid as if some cunning workman had carved them from Persian marble; for not only the leaves and petals were rendered stone-like, but the minute hair formed stems were rendered coraline.

Stylographic Engravings.

There was exhibited at the Mechanic's Fair in Boston, a specimen of a new style of engraving, in alto-relief, invented by Mr. J. C. Crossman, engraver of that city, and called by him stylographic engraving. It is one of the most valuable discoveries or inventions connected with printing or engraving on wood.

To make Pumpkin Butter.

To one barrel of sweet cider boiled down about one-third, take two bushels of pumpkins cut in pieces like apples, they being peeled nnd cored, and add them to the cider gradually, stirring all the time, until the whole is boiled down to about 12 gallons, and just before taking them off add half a pint of ground cinnamon and spice it to taste. This makes an excellent table dish, one fit for either king or countryman, only the latter deserves it most.

The Cathedral of Mexico.

Some idea of the great riches of Mexico may be derived from the following description of a single church :—

Golden Altar Service ; 6 large golden candlesticks, 50 inches high ; 6 large golden branches with vases of same size ; 4 smaller candlesticks of gold, 16 inches high ; 2 golden censors ; 2 golden utensils to scatter holy water ; 1 golden cross set with very precious stones, with pedestals and font pieces set with precious stones; 1 cross of gold filagree work; 4 golden crosses ; 2 Portapares of gold ; the weight of this altar service is not less than 469 pounds and the value of it not less than $125,000.

The image of the Ascension (the title of this church,) is of solid gold, adorned with very rich jewels ; the weight of the image is 6,894 gold cantellanos, or $18,700. Its value, including jewels, is not less than $30,000.— The image of the conception, is of solid silver, and weighs thirty nine pounds—value $625. The silver lamp which adorns the front of the Presbytery weighs 2,186 pounds of silver, 855 pounds of which is gilded with pure gold. Its appearance is magnificent.— It has 54 burners ; its height is 22 feet ; circumference 30 feet, and it is suspended by an iron chain and bolt weighing 1620 pounds.— The cost of the lamp was $71,343 37, and its value of silver and gold alone is over $45,000. The principal tabernacle, or case in which the sacred specie is preserved is 27½ inches high. and weighs 44 pounds, of pure gold.— Its front is covered with 5872 diamonds, its back with 2652 emeralds, 644 rubies, 105 amethysts and 28 sapphires. Its cost was over $150,000, which it is now richly worth. The large Cibrium is of pure gold, of 9 pounds weight, and has 1676 diamonds set in it. It is worth $10,580. The Chalice, of pure gold, weighs 5½ pounds and has set in it 122 diamonds, 1400 emeralds, 850 pearls, and is worth about $4000. The jewels of these cups were the gift of the Emperor Charles V.

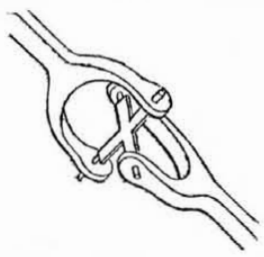
In addition to these there are 25 chalices of gold, mostly richly adorned with diamonds and precious stones—5 large golden plates with their incense boxes and bells of gold.— The united value of these cups and plates is about $20,000.

The silver service of this cathedral is very beautiful and extremely valuable, Among the pieces are 13 chandeliers, 12 incense boxes, 42 large branches, 7 feet high each ; 72 silver cups and incense burners ; 96 silver candle sticks, and a multitude of branches ; 3 silver statues; 1 very large silver closet, beautifully engraved, for the deposit of holy things; 2 lamp standards, with each 4 clusters of branches ; 3 large standard candlesticks each 6 feet high ; 20 silver candlesticks, very large, in the aisles of the cathedral. Entire value in silver, $40,000

The robes and garments of the priesthood are of the richest and most costly description The more expensive were gifts of the Emperor Charles V.

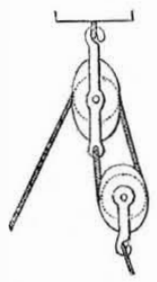
MECHANICAL MOVEMENTS.

The Universal Joint.



This mechanical movement is an invention attributed to Dr. Hook, by means of which the rotary motion of a shaft may be conveyed out of a straight line without breaking its continuity. It is well known that the axis to which rotation is to be given, or from which it is to be taken, is sometimes variable in its position. In such cases this joint may be used. The two axles between which the motion is to be communicated, terminate in semi circles, the diameters of which are fixed in the form of a cross, the extremity moving freely in bushes placed in the extremities of the semicircles. This instrument will not transmit the motion if the angle under the direction of the shafts be less than 140 degrees, although a double joint, on the same principle will, as it will then consist of four semicircles united by two crosses.

Rope and Pulley



The pulley is a contrivance, rather a mechanical invention, the origin of which is hid far down in fabled antiquity. The antediluvians were undoubtedly acquainted with it, and as it was the most common mechanical means of transmitting power in any one direction, we may not be saying too much, when we assert that in all likelihood it was used in the building of Noah's Ark. A block and tackle, or rope and pulley, just means a flexible lever moving over an edge, which produces no more friction than arises from the surface of that edge, or rather a curved surface, rolling on the rope. It has been considered in elementary mechanics that all the mechanical efficacy of this machine depends on the quality of the rope and not on those of the block or sheeve, which are only used to remove the effects of stiffness and friction. yet are not the latter qualities as essential to mechanical effect, as the former ? Certainly they are, and we have been informed that a new block has lately been invented which will effect a saving of at least 15 per cent. We shall refer to this invention at some future period

Power of Enduring Heat.

The female servant of a baker in Rachefoucalt, clothed in flannel, was in the habit of entering her master's oven and remaining long enough to remove all the loaves; and Dr. Brewster informs us that the late Sir Francis Chantry's workmen entered the oven employed for drying the moulds, an iron apartment 14 feet high, and 12 feet broad, the temperature of which, with closed oors, was 350 degrees, and the iron floor red hot. They were guarded against the heat of the floor by wooden clogs, which were of course, charred on on the surface. 'On one occasion,' he adds, 'M. Chantry, accompanied by five or six of his friends, entered the furnace, and after remaining two minutes, they brought out a thermometer which stood at 320 degrees.— Some of the party experienced sharp pains in the tips of their ears and in the septum of the nose, while others felt a pain in their eyes. These experiments prove the extraordinary heat which the living body can bear with impunity, and favor the possibility of persons passing uninjured through the flames provided the body can be guarded from being scorched, by a non-conducting covering of an incombustible nature.

Instinct of Plants.

Observation shows that plants have hours to rest, during which time they make little or no progress in growth. A curious proof of this statement was afforded by an account of a gentleman who had an artificial illumination kept in his graperies throughout the night; and where this was done, the grapes ripened sooner by several weeks; but subsequent accounts inform us that the vines thus stimulated were much weakened.

Some plants, like some animals, have been ordained for the night, and these accordingly are active during these hours. The night-blooming Cereus is an example of this sort. Others, that increase and flourish during the day, close their flowers and frequently their leaves, and remain inactive throughout the night.

The botanist Guabert, in a recent sitting of the French Academy of Science, attributed the remarkable mortality of the trees in the Parisian Boulevards as well as living creatures to need of repose at night.

It cannot be discovered by the most critical observation that wrought iron road rails lose any of their weight by wear even in 18 years use.

Odors.—Musk.

Musk is a concrete substance, found in animals having a near affinity to the deer tribe, a native of Thibet, China, and Siberia. The musk-deer is a timid animal, and rarely appears during the day; consequentiy the musk-collectors watch and surprise it at night. The best musk comes from China; and to have it genuine it should be purchased in the natural bag, or pod, as it is very often adulterated. The Bengal musk is interior, and that from Russia the worst of all. The hair on the pod of the very best musk is a fawn color; that on the inferior a dirty white A variety of musk is found in the muskrat of America, an animal about the size of a small rabit. Musk is of a bitter taste, and of odor more powerful than anything known; substances in its neighborhood become strongly infected by it; and when once perfumed with it long retain the scent. It has been known to affect chests of tea placed at a considerable distance, though both had been packed up in leaden boxes; for which reason the East India Company gave an order not to import musk and tea in same the ship. Many persons dislike the odor. It has the property when employed in very small quantities, of augmenting the scent of other substances, without impairing its own.

Fractions.

M. Bradel, a French gentleman, gives a new rule for the subtraction of fractions, which owing to its simplification is quite useful, and in some cases admits of a considerable abridgement in the calculation. Thus—where the two terms in two fractions differ little from each other, in order to perform the subtraction between the two fractions, we may multiply the difference of the denominator, and of the numerator of each of them, by the denominator of the other fraction, and that the difference of these two products will give the numerator sought.

Mr. Des Debats, the above rule is not new.

Professor Teschemacher of Boston, says that the fossil vegetation of anthracite coal, is the very same as that found in shell.

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